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Additions to our knowledge of lichens and lichenicolous fungi in Iran

Tahereh Valadbeigi[1*], H. Thorsten Lumbsch[2*], Harrie J. M. Sipman[3], Hossein Riahi[1] & Ali Asghar Maassoumi[4]

[*]T_Valadbeigi@sbu.ac.ir h-riahi@cc.sbu.ac.ir
[1]Department of Botany, University of Shahid Beheshti
P. O. Box 1983963113,Tehran, Iran

**tlumbsch@fieldmuseum.org*
[2]Department of Botany, The Field Museum
1400 S. Lake Shore Drive, Chicago, IL 60605, USA

h.sipman@bgbm.org
[3]Botanischer Garten und Botanisches Museum, Freie Universität
Königin-Luise-Straße 6-8, D-14195 Berlin, Germany

maassoumi@rifr-ac.ir
[4]Department of Botany, Research Institute of Forests and Rangelands
P. O. Box 13185-116, Tehran, Iran

Abstract — In this study 23 species of lichens and lichenicolous fungi are recorded as new to Iran, of which 12 were collected from the province of Ilam and 11 from six other provinces. The full checklist is available on http://www.mycotaxon.com/resources/weblists.html.

Key words — *Ascomycota*, Asian lichens, floristics, lichenized fungi

Introduction

A preliminary lichen checklist of Iran (Seaward et al. 2004) included 396 lichens and eight lichenicolous fungi based mainly on literature records and studies of voucher material. It also summarized the literature on Iranian lichens. Subsequently, a revised checklist of lichenized, lichenicolous, and allied fungi for Iran (Seaward et al. 2008) added 136 species. Recently, the first author has collected intensely in several provinces, especially Ilam, Lorestan, and Kuzestan. Here we report the discovery of 23 new species for the lichen flora of Iran, 12 of which are recorded from the province of Ilam and 11 from the provinces of Chaharmahal & Bakhtiyari (2 species), Gorgan (1 species), Kerman (2 species), Khuzestan (1 species), Lorestan (4 species), and Zanjan (1 species).

The province of Ilam, located in the west of Iran, consists mainly of lowlands covered by arid habitats, such as deserts and semi-deserts. The area adjacent to Khuzestan province is equally a low-altitude desert with sandy hills reaching to only 100–180 m above sea level. Montane areas, between 300 and 1500 m, are found adjacent to Lorestan and Kermanshah and are rich in rocky substrata. The average annual rainfall in this area is below 700 mm. The highest summit is located in the Kabir Kuh chain in the central part of the province and reaches up to 2790 m. Three major vegetation zones can be distinguished in this area: 1 — semi-deserts, including plains and low hills with gypsum and calcareous soils, with vast desert parts dominated by *Alhagi mannifera*, *Capparis spinosa*, *Hammada salicornica*, *Prosopis farcta*, *Silybum marianum*, *Vitex pseudonegundo*, *Ziziphus nummularia*; 2 — high mountains and cushion-plant areas, mostly covered by the drought-resistant *Quercus brantii*; and 3 — shrubby parts above the *Quercus*-growing line, mostly with plant species like *Acer monspessulanum*, *Alkanna orientalis*, *Amygdalus elaeagnifolia*, *Amygdalus haussknechtii* and other herbaceous plants like *Acantholimon erinaceum*, *Acanthophyllum microcephalum*, *Artemisia haussknechtii, Bunium luristanicum, Celtis caucasica* and, *Lonicera nummulariifolia.*

Materials and methods

Lichens were identified from 14 sites within the study area (Fig. 1).The material was collected by the first author between 2004 and 2009. The principal identification guides used were Brodo at al. (2000), Hinds & Hinds (2008), and Purvis et al. (1992). TLC was performed following Orange et al. (2001) using solvent system EA and G on silica gel 60 F_{254} layer 20 × 20 cm glass plates; 10% sulphuric acid was used as a reagent for the visualization of the spots. The specimens are kept in TARI with duplicates in the private herbarium of the first author and duplicates of most species in B, F and SBUH.

Localities

I– Chaharmahal & Bakhtiyari, S of Shahrekord, between Tanghanak and Shalamzar, 32°29'N, 50°54'E, c. 1700 m, 24.1.2007.

II– Gorgan, E of Gorgan, 36°52'N, 54°50'E, c. 900 m, 11.10.2006.

III.1– Ilam, Dehloran, 32°41'N, 47°25'E, 1350 m, 13.4.2004.

III.2– Ilam, Abdanan towards Dehloran, Murmuri, dry limestone and gypsum hills, 32°43'N, 47°40'E, 1875 m, 19.8.2005.

III.3– Ilam, plains toward W slope of Dinar Kuh, montane area, 32°50'N, 46°52'E, 1065 m, 10.9.2006.

III.4– Ilam, Abdanan, Dinar Kuh, montane area, Sarabe Bagh, 32°49'N, 04°74'E, 2370 m, 12.3.2005.

III.5– Ilam, Abdanan to Hezar nei, Kabir Kuh, 32°57'N, 47°20'E, 2500–3100 m, 30.3.2004.

III.6– Ilam, c. 30 km S of Salehabad, 10 km SW of Konjancham towards Shoor o Shirin, gypsum hills along Iraq border, 33°19'N, 46°12'E, 1469 m, 5.4.2006.

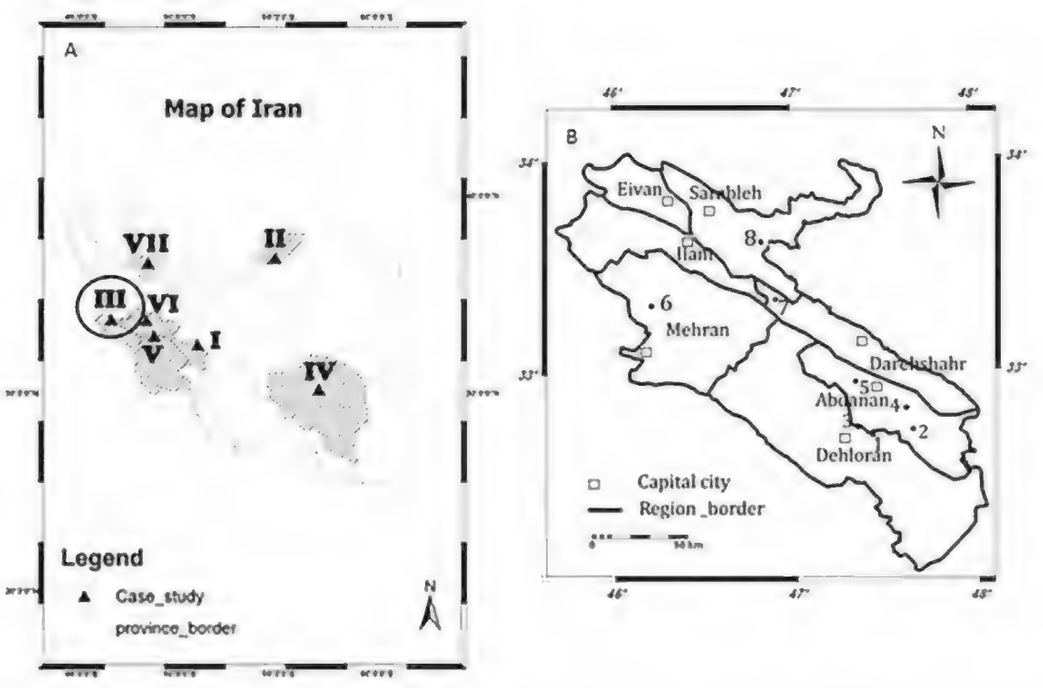

FIG. 1-A. Location of the seven provinces studied. B. Collecting sites within Ilam province (III).

III.7– Ilam, Badreh, 33°04'N, 47°19'E, 1115 m, 4.8.2005.

III.8– Ilam, S of Sarableh, Shirvan Chardavol, Chame Jangle village, Drooger, 33°34'N, 46°40'E, 900 m, 8.7.2008.

IV– Kerman, S of Kerman, 30°11'N, 57°03'E, c. 2000 m, 2.8.2007.

V– Khuzestan, Dezfull, Dez Dam, 32°56'N, 48°42'E, c. 500 m, 31.3.2008.

VI– Lorestan, S of Qal'eh Mozaffari, Kakareza, 33°43'N, 48°16'E, c. 2000 m, 14.12.2007.

VII– Zanjan, Tarom, Jamal abad, 32°62'N, 41°01'E, c. 2200 m, 15.5.2009.

List of taxa

(*: lichenicolous fungi. Roman numerals refer to the localities as listed above, and arabic numbers refer to the collection sites within Ilam province. Bold numbers are the collection numbers of T. Valadbeigi).

Acarospora laqueata Stizenb.: On siliceous rock, VI: **7071**.

Acarospora nitrophila H. Magn.: On siliceous rock rich in heavy metals, on roadside, V: **7076**.

Aspicilia aspera (Mereschk.) Tomin: On calcareous rock, VI: **7073**.

Aspicilia determinata (H. Magn.) J.C. Wei: On calcareous rock, IV: **7061**.

Aspicilia moenium (Vain.) G. Thor & Timdal: On calcareous rock, VI: **7074**.

Caloplaca bohlinii H. Magn.: On calcareous rock, VI: **7075**.

Candelariella coralliza (Nyl.) H. Magn.: On sandstone, III.3: **7015**.

Collema nigrescens (Huds.) DC.: On the bark of *Populus nigra* and *Quercus brantii*, III.3: **7009**.

Cornicularia normoerica (Gunnerus) Du Rietz: On siliceous rock, VII: **7078**.

Ingvariella bispora (Bagl.) Guderley & Lumbsch: On siliceous rock, I: **7062**.

Lecanora albescens (Hoffm.) Branth & Rostr.: On calcareous sandstone, III.5: **7004**, and on tree bark, III.1: **7014a**.

Lecanora valesiaca (Müll. Arg.) Stizenb.: On calcareous rock, III.3: **7037a**.

Lepraria isidiata (Llimona) Llimona & A. Crespo: On mineral soil, III.6: **7030**.

Leptogium pulvinatum (Hoffm.) Cromb.: On mossy calcareous soil, III.8: **7077**.

****Muellerella pygmaea*** (Körb.) D. Hawksw.: On *Lecidea* sp. over calcareous rock, I: **7052a**.

Normandina pulchella (Borrer) Nyl.: Epiphytic on bark and among mosses, III.2: **7021**.

Peltula euploca (Ach.) Poelt: On granitic rock, III.3: **7066**.

Psora globifera (Ach.) A. Massal.: On calcareous and mica–schist soil, III.3: **7039**.

Psora saviczii (Tomin) Follmann & A. Crespo: On gypsiferous soil, III.5: **7002**, III.7: **7019**.

Psora testacea Hoffm.: On mosses on rock, III.4: **7017**.

Rinodina subnigra H. Magn.: On calcareous rock, IV: **7063**.

Spiloma auratum Sm.: On *Ulmus* sp., II: **7045**. The systematic position of this species, not known in the perfect stage, is still unclear. Other species attributed to *Spiloma* have been found to belong to widely different groups like *Arthonia*, *Porpidia*, and *Xylographa*.

Thelotrema lepadinum (Ach.) Ach.: On *Quercus brantii* in humid site, III.5: **7005**.

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